



The Scientific Basis and Need for Updating U.S. Radiogenic Cancer Risk Estimates

**SAB Radiation Advisory Committee
Arlington, VA
March 23-25, 2009**

**Jon Edwards, Director
Radiation Protection Division
Office of Radiation and Indoor Air**

Overview

- Why Revise the “Blue Book” Now?
- Blue Book Draws from Many Sources
- Value of SAB Review of Blue Book
- Guiding Principles
- History and Important Milestones
- Next Steps in the Process
- Revising FGR 13



Why Revise the “Blue Book” Now?

- To incorporate current science in our cancer risk assessment methodology
 - ✓ ~15 years additional follow-up of Japanese atomic bomb survivors (life span study or LSS)
 - ✓ Improved dosimetry for LSS (DS02)
 - ✓ Information from other epidemiological studies
 - ✓ Consider other issues such as relative biological effectiveness (RBE) for lower energy beta and gamma emissions
 - ✓ To reflect recent U.S. mortality and incidence data



Blue Book Draws from Many Sources

- National Academy of Sciences – BEIR VII
- Current peer-reviewed scientific literature
- Other international and national scientific bodies
 - ✓ International Commission on Radiological Protection (ICRP)
 - ✓ United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
 - ✓ National Council on Radiation Protection and Measurements (NCRP)
 - ✓ UK Committee Examining Radiation Risks of Internal Emitters (CERRIE)



Value of SAB Review of “Blue Book”

- Independent expert advice
 - ✓ Relevant scientific backgrounds and experience from many disciplines
- Help in resolving issues related to:
 - ✓ EPA’s interpretation of BEIR VII
 - ✓ EPA’s approach to handling uncertainties
 - ✓ Comments from public
- Opportunity for stakeholder involvement
- Assist in fulfilling our guiding principles

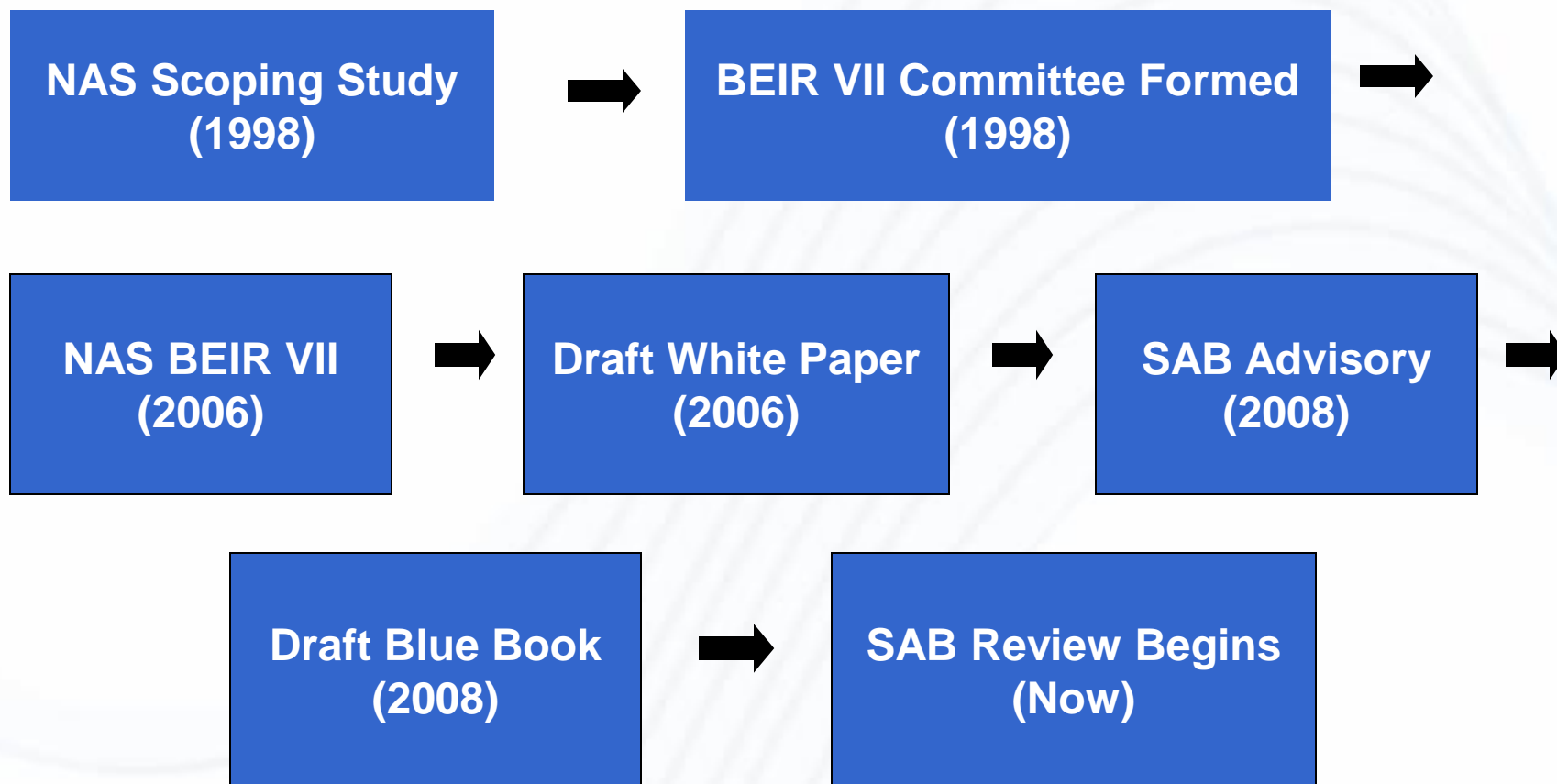


Guiding Principles

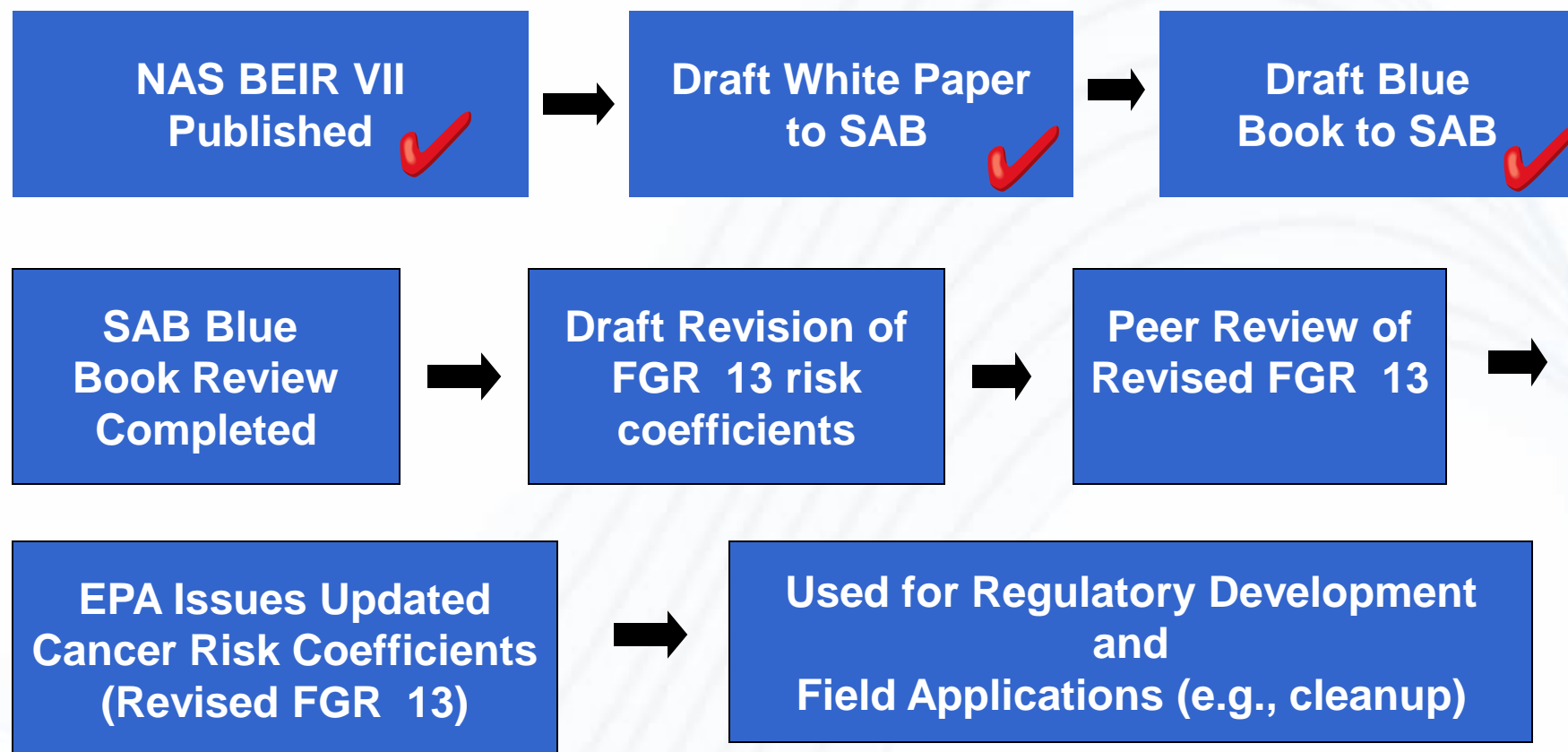
- *Scientific Integrity* of EPA's risk assessment process
- *Sound Science* foundation for the "Blue Book"
- *Transparency*
 - ✓ Understanding how decisions are reached
- *Open Public Process*
 - ✓ Opportunities for stakeholder involvement
- *Credibility* of peer review process
 - ✓ Scientific consensus



History and Important Milestones



Next Steps in the Process



Revising FGR 13

- Risk models in “Blue Book” along with ICRP biokinetic and dosimetric models will be used to recalculate cancer risk coefficients (FGR 13)
- Revised FGR 13 will likely include:
 - ✓ Age-averaged risk coefficients for population risk estimates from chronic exposure
 - ✓ Risk coefficients for special populations based on age- and gender-specific data
 - ✓ Discussion of topics such as applying risk models to special exposure situations e.g., high dose episodic exposures



Today's Focus

